CHAPTER I

INTRODUCTION

1.1 Background of research

Logistics play an important role in determining the competitiveness of companies that make logistics delivery business people are required to maintain and increase competitive value (Kristanto, Muliawati, Arief, & Hidayat, 2018). This is because Third Party Logistics (3PL) can offer to the companies various types of services as professional logistics transportation such as warehousing, logistics information systems, warehousing management, inventory management, product packaging and product returns service (Langley, von Dort, A g, & Sykes, 2005). So the demand for logistics services are increasing which of course makes logistics services have to make a strategic role, especially in the transportation sector. This is because the transportation segment is the largest contributor to logistics costs followed by freight forwarding and warehousing (Edward Frazelle, 2002). In addition, the performance of Third Party Logistics (3PL) is also an important factor used in determining risk and resilience in the Third Party Logistics (3PL).

Third-party logistics (3PL) are a logistics service provider that cover generally asset-based and focuses on certain elements of the supply chain to optimize the physical movement of goods from the initial position to the end of the user and return defective products to suppliers (Meade & Sarkis, 2002). Third-Party Logistics (3PL) is a new development in the global supply chain network, which to the problem of applying supply chain management so far, for example in shortening lead times as well as pursuing cost reduction simultaneously, because this is evidenced by the fact that logistics costs is a large part of the supply chain (Zhang & Okoroafo, 2015). In achieving the objectives of the supply chain, namely

the delivery of products that are timely and of good quality, there are factors that can affect the smooth flow of supply chain activity. (Puspitorini, 2011). So the purpose of Third Party Logistics (3PL) is to achieve on time product delivery and good quality. But that certainly will not be separated from a threat as a factor causing the disruption which will ultimately affect the smooth flow of the supply chain activity. These factors arise because there are uncertainty conditions about the activities that occur it means causing risk (S, Herryandie, & Adi, 2012). Risk events arise due to several sources of risk contained in them, especially in the tier collector traders. If one of the tiers in the supply chain is disrupted, it will potentially provide a disruption to the next tier which has an impact on the disruption of the supply chain system in the distribution of products which causes losses which will affect the achievement of the company's objectives. (Bosman, 2006) states that one of the supply chain activities that has a significant impact on the company's business continuity is product distribution and (IBM Global Business Services 2008) which states that one supply chain activity has a critical function and has the potential to cause activity in the supply chain to stop (when something unexpected happens) to the distribution activity. Based on the statement, the role of distribution activities in the supply chain is very vital because it determines the process of distributing the product to the end consumer, which is a goal that must be achieved from the entire supply chain activities.

The distribution process that is undertaken during product distribution, is certainly not free from a variety of possible risks that can hamper the achievement of the goal of timely delivery to the hands of the final disaster with quality that is well maintained. Possible risks in product distribution activities such as risks to the product, transportation and people. Risks that occur in the product or called product risk, namely, product delays, damaged products, product exchanges and lost products. While transportation risk is damaged vehicles and accidents. And, the

risk that occurs in humans or called human risk occurs, namely fraud and neglect. All possible risks can arise in product distribution activities with uncertain probabilities. (S et al., 2012). So that in order to reduce the impact of these risks, the role of Supply Chain Resilence (SCR) is needed.

Supply Chain Resilience (SCR) is the key to corporate to be successfull to and Supply Chain (SC) (Ambulkar, Blackhurst, & Grawe, 2015, Soni, Jain, & Kumar, 2014, Wieland & Wallenburg, 2012, Pereira, Lago, & Silva, 2014; Hohenstein et al., 2015) useful for companies to quickly assess the impact of risk on the supply chain and possible recovery rates during disruption, increasing collaboration between supply chain partners (Soni et l., 2014).Supply Chain Resilience (SCR) is one of the most important aspects of Supply Chain Management (SCM) and is likely to be widely studied, such as supply chain risk management (Pettit, Fiksel, & Croxton, 2010;Ratick, Meacham, & Aoyama, 2008;Spiegler, Naim, & Wikner, 2012; Dmitry Ivanov1, Boris Sokolov & 1Berlin, 2014,Vugrin et al., 2011), social capital (Johnson et al., 2013), related skills (Wieland & Wallenburg, 2012), purchases (Pereira et al., 2014), reconfiguring resources (Ambulkar et al., 2015),, and company innovation (Ponomarovb & ADoctoral, 2014). Thus, Supply Chain Relativity can be defined as the company's ability to identify potential obstacles and risks in managing Supply Chain, which enables it to adopt effective measures before the Supply Chain cut off (Brandon-Jones, Squire, Autry, & Petersen, 2014).

(Saraswati, Baihaqi, & Anggrahini, 2018) conducted a research in the field of Logistics by building a supply chain resilience to reduce risks in freight forwarders who are one of the players in the maritime logistics industry by using Quality Function Development (QFD) carried out in the matrix phase quality house is the HOQ matrix (House of Quality) by changing the HOQ function from the product planning tool to become a risk analysis tool to become a House of Risk.

(House of Risk) HOR is used to determine risk priorities that occur in order to obtain mitigation as a prevention in the future (Pujawan & Geraldin, 2014) and as a model for prioritizing resilience measures for companies from a supply chain perspective taking into account consumer needs and risks with the results of the determination of 3 risk priorities from identified 16 customer needs, 3 risk priorities from identified 17 potential risks, 3 risk priorities from identified as many as 24 causes of risk, and 3 risk priorities from identified 20 priority resilience measures. (Chang & Lin, 2018conducted a study of the disruption in the supply chain and the factors that influence its performance resistance due to waiting time using the multy ecelon dynamic system method and the results of the study are to limit the level of orders. Whereas (Soni et al., 2014) conducted research on how to create supply chain risk by creating resilient supply chains using *Supply Chain Resilience Index* method with the help of *Interpretive Structural Modelling* (ISM).

In this study, 19 indicators / enablers were used. Where 16 attributes were obtained from the results of the research (Saraswati et al., 2018) which then carried out the addition of 3 (three) ebnablers. The occurrence of attribute additions is due to the research (Saraswati et al., 2018) that there are no enablers for security, safety, insurance from vehicles that are included in the risk of customer needs to the Third Party Logistics (3PL) company. To solve the problem in this research, it is necessary to integrate the Dynamic System and Interpretive Structural Modelling (ISM). The reason for using the dynamic system method in this research is because human thinking capacity is very limited, so the help of a model is needed to solve complex problems by solving problems that are in accordance with real and reasonable behavior. This methodology focuses on policy making and how these policies determine the behavior of problems that can be modeled dynamically (Richardson and Pugh 1986) and a method that can be used to solve various kinds of problems in various fields. While the reason for using the

Interpretive Structural Modeling (ISM) method is to determine the level of resilience in Third Party Logistics (3PL) in dealing with risks that occur during the process of distributing goods.

From the description of some of the above studies, in this study the authors want to develop a research entitled "Risk and Resilience Third Party Logistic (3PL) in Freight Forwarder Company" which aims to measure the priority risk of Third Party Logistics (3PL) and the level of resilience of Third Party Logistics (3PL) in distribution

1.2 Formulation of the problems

In this research there are two main problems, namely:

1. How to measure the priority of risk occurrence in product distribution by freight forwarder companies?
2. How to determine the level of resilience of Third Party Logistics (3PL) in the distribution of goods?

1.3 Objective of the research

The purpose of this research is to be achieved

1. To measure the priority of risk occurrence in product distribution by freight forwarder company.
2. To know the importance of Third Party Logistic (3PL) resilience in the distribution of goods by freight forwarder companies.

1.4 Significance of research

1. For Academic

   Add literature to the results of research that can then be used as a reference in related research

2. For Freight Forwarder Companies

The results of this study are expected to be a reference to make improvements and mitigate risk in various aspects especially in the third party logistic that can be used in the distribution of product.

1.5 The Scope of research

1.5.1 Limitation of research

The limitation in this study is that Resilience Analysis in the supply chain only covers the resilience Third Party Logistics (3PL) of the goods distribution process by the freight forwarder company and this research only focuses on the Domestic Freight Forwarder (DFF) business system.

1.5.2 Assumptions

1. Data is used on January until June 2018
2. Third Party Logistics (3PL) used during the study did not change.
3. The type of vehicle used is a type of container trailer.
4. Order allocation is considered optimal
5. Goods is instanteously.
6. Product category is Perishable product.

1.6 Writing system

Chapter I Introduction

This chapter contains the background of the problem, the formulation of the problem, the purpose of the research, the benefits of the research, the limitations of the study, the research assumptions, and the systematics of writing.

Chapter II: Literature Review

This chapter contains the theoretical basis relating to the topic of the problem to be analyzed including the theory of Third Party Logistics (3PL), the theory of Supply Chain Research, the theory of Dynamic Systems, Interpretive Structural Modeling (ISM), and state of the art.

Chapter III: Research Methods

This chapter describes the research methodology used in modeling and formulating mathematical models.

Chapter IV: Analysis and Discussion

In this chapter an analysis of the techniques of the related solutions will be carried out, and modeling the dynamic system to identify the risks of Third Party Logistics (3PL) assessing the Third Party Logistic (3PL) in the distribution of goods.

Chapter V: Conclusion and Suggestion

This chapter will conclude the results of the research that has been carried out and as a direction for further research.